

**REMARKS*****Status of Claims***

Claims 1-40 were originally pending in this patent application.

Claims 1, 22, 30, 31, 37 and 39 are currently amended.

Claims 2, 29 and 36 are currently canceled.

Claims 41-43 are new.

Thus, claims 1, 3-28, 30-35 and 37-43 are currently pending in the application.

Applicants hereby request further examination and reconsideration of the presently claimed application.

***Claim Rejections – 35 USC § 102(b)***

Claims 1-35 stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 4,892,893 to Grace et al. (hereinafter *Grace '893*). Claims 1-35 also stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 4,849,459 to Grace et al. (hereinafter *Grace '459*). Claims 1-35 further stand rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 4,757,093 to Ricciardi et al. (hereinafter *Ricciardi*). Claims 2, 29, and 36 have been canceled, claims 3-21 depend on claim 1, claims 23-28 depend on claim 22, and claims 30, 32-35 and 37-40 depend on claim 31. Thus, the pending claims stand or fall on the individual application of *Grace '893*, *Grace '459*, and *Ricciardi* to independent claims 1, 22, and 31.

According to MPEP § 2131, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Applicants respectfully submit that the cited prior art does not disclose each and every limitation set forth in the amended claims, and therefore does not anticipate the pending claims.

Claims 1 and 3-21, 41 and 42

Claim 1, as amended, recites that the claimed polyurethane foam passes *both* the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. To provide some background, one measure of the fire resistance of polyurethane foam is whether or not the foam passes the most stringent fire resistance tests in the industry. One of these tests, the California Bureau of Home Furnishings and Thermal Insulation Technical Bulletin 117 (“California 117 Burn Test” or “TB 117”), has historically set the minimum requirements for the smoldering cigarette fire resistance in home furnishings. However, TB 117 has been revised since it was created in 1975, and the current version of TB 117, dated March 2000, contains two portions applicable to flexible, slabstock polyurethane foam: Section A, Part I (the open flame resistance portion), and Section D, Part II (the smoldering resistance portion). When testing a product according to the open flame resistance portion, the foam is positioned vertically over an open flame for twelve seconds and the foam is allowed to burn until the fire self-extinguishes. The open flame resistance portion sets limits on the maximum and average char length, the afterglow, and the afterflame. When testing a product according to the smoldering resistance portion, the foam is exposed to a smoldering cigarette and the foam is allowed to burn until the fire self-extinguishes. The smoldering cigarette portion measures the resulting weight loss of the foam.

When the March 2000 version of TB 117 was introduced, several existing foam formulations that passed earlier versions of TB 117 and/or other tests were unable to pass both the open flame resistance and smoldering resistance portions of TB 117. Of course, it was thought that additional amounts of FR materials, including melamine, could be added to the foams to make them pass both portions of the test. However, it was quickly discovered that there are tremendous processing difficulties in adding high amounts of melamine to the foam because, like adding sand

to a cake mixture, melamine is a plurality of solid particles in an otherwise liquid mixture and either settles out of the mixture or prevents the foam from rising. Thus, Applicants sought to create a polyurethane foam that could pass both portions of the current TB 117 and that could also be reliably manufactured on a commercial scale, *e.g.* without the foam failing to rise.

Applicants submit that amended claim 1 is patentably distinguishable over *Grace '893*, *Grace '459* and *Ricciardi* at least because these references all fail to disclose polyurethane foam that passes *both* the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Specifically, *Grace '893* and *Grace '459* disclose only that their foams pass the original TB 117 smoldering portion. *See Grace '893*, col. 8, line 19, and *Grace '459*, col. 6, line 6. *Grace '459* also fails to anticipate amended claim 1 because *Grace '459* discloses a foam product that contains between 30 and 55 weight percent melamine. *See Grace '459*, col. 1, lines 61-68. *Ricciardi* also fails to disclose polyurethane foam that passes both the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test. Instead, *Ricciardi* uses the Motor Vehicle Safety Standard (MVSS) 302 test, a less-stringent horizontal flame test, to describe the flame resistance of his foam. *See Ricciardi*, col. 7, lines 16-17. Therefore, at least because *Grace '893*, *Grace '459* and *Ricciardi* fail to teach or suggest polyurethane foam that passes *both* the open flame resistance portion and the smoldering resistance portion of the California 117 Burn Test, these cited references fail to disclose each and every element of amended claim 1. Accordingly, Applicants submit that independent claim 1 is patentably distinguishable over *Grace '893*, *Grace '459* and *Ricciardi*. Additionally, Applicants note that rejected claims 3-21 as well as new claims 41 and 42 each depend from allowable claim 1. Thus, Applicants respectfully submit that claims 3-21, 41 and 42 are likewise in condition for allowance over *Grace '893*, *Grace '459* and *Ricciardi*.

Claims 22-28

Applicants submit that amended claim 22 is patentably distinguishable over *Grace '893* at least because this reference fails to disclose a slabstock foam manufacturing process using from about 5 to about 10 weight percent melamine, wherein the melamine has a mean particle size of about 28 microns or less. Specifically, *Grace '893* teaches away from such sizes of melamine by teaching that foams with melamine having a mean particle size of 40 microns or less are unstable. See *Grace '893*, col. 7, lines 13-16. Therefore, *Grace '893* fails to disclose each and every element of amended claim 22. Accordingly, Applicants submit that independent claim 22 is patentably distinguishable over *Grace '893*. Additionally, Applicants note that rejected claims 23-28 each depend from allowable claim 22. Thus, Applicants respectfully submit that claims 23-28 are likewise in condition for allowance over *Grace '893*.

Applicants submit that amended claim 22 is likewise patentably distinguishable over *Grace '459* and *Ricciardi* at least because these references fail to disclose a slabstock foam manufacturing process using from about 5 to about 10 weight percent melamine. Instead, *Grace '459* discloses foam containing significantly more than the claimed quantity of melamine, and specifically between 30 and 55 weight percent melamine. See *Grace '459*, col. 1, lines 61-68. On the other hand, *Ricciardi* discloses foam containing significantly less than the claimed quantity of melamine, and specifically between 1-5 parts of melamine, equating to 0.5 – 3 weight percent based on the disclosed foam formulations. See *Ricciardi*, col. 4, lines 62-67. Therefore, at least because *Grace '459* and *Ricciardi* fail to teach or suggest a slabstock foam manufacturing process using from about 5 to about 10 weight percent melamine, these cited references fail to disclose each and every element of amended claim 22. Accordingly, Applicants submit that independent claim 22 is patentably distinguishable over *Grace '459* and *Ricciardi*. Additionally,

Applicants note that rejected claims 23-28 each depend from allowable claim 22. Thus, Applicants respectfully submit that claims 23-28 are likewise in condition for allowance over *Grace '459* and *Ricciardi*.

Claims 30, 31-35 and 43

Applicants submit that amended claim 31 is patentably distinguishable over *Grace '893* at least because this reference fails to disclose a carbon dioxide foam manufacturing process comprising: filtering the pre-blend. Specifically, *Grace '893* teaches away from filtering by teaching that the filter screens must be removed from the equipment. See *Grace '893*, col. 7, lines 29-32. Therefore, *Grace '893* fails to disclose each and every element of amended claim 31. Accordingly, Applicants submit that independent claim 31 is patentably distinguishable over *Grace '893*. Additionally, Applicants note that rejected claims 30 and 32-35 as well as new claim 43 each depend from allowable claim 31. Thus, Applicants respectfully submit that claims 30, 32-35 and 43 are likewise in condition for allowance over *Grace '893*.

Applicants submit that amended claim 31 is likewise patentably distinguishable over *Grace '459* and *Ricciardi* at least because these references fail to disclose a carbon dioxide foam manufacturing process comprising: adding from about 5 to about 10 weight percent melamine. Instead, as described above with respect to claim 22, *Grace '459* discloses foam containing significantly more than the claimed quantity of melamine, and specifically between 30 and 55 weight percent melamine. See *Grace '459*, col. 1, lines 61-68. On the other hand, *Ricciardi* discloses foam containing significantly less than the claimed quantity of melamine, and specifically between 1-5 parts of melamine, equating to 0.5 – 3 weight percent based on the disclosed foam formulations. See *Ricciardi*, col. 4, lines 62-67. Therefore, at least because *Grace '459* and *Ricciardi* fail to teach or suggest a carbon dioxide foam manufacturing process

comprising: adding from about 5 to about 10 weight percent melamine, these cited references fail to disclose each and every element of amended claim 31. Accordingly, Applicants submit that independent claim 31 is patentably distinguishable over *Grace '459* and *Ricciardi*. Additionally, Applicants note that rejected claims 30 and 32-35 as well as new claim 43 each depend from allowable claim 31. Thus, Applicants respectfully submit that claims 30, 32-35 and 43 are likewise in condition for allowance over *Grace '459* and *Ricciardi*.

***Claim Rejections – 35 USC § 103(a)***

Claims 36-40 stand rejected under 35 USC § 103(a) as being unpatentable over *Grace '893* and further in view of U.S. Patent No. 5,789,457 to Eiben et al. (hereinafter *Eiben*) and U.S. Patent No. 3,862,921 to Webster et al. (hereinafter *Webster*). Claim 36 has been canceled, and claims 37-40 each depend from amended claim 31. Applicants respectfully submit that the combination of *Grace '893* with the other cited references do not establish a *prima facie* case of obviousness as to dependent claims 37-40. According to MPEP § 2142, three basic criteria must be met to establish a *prima facie* case of obviousness:

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Applicants submit that no *prima facie* case of obviousness has been established as there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the *Grace '893* reference or to combine the *Grace '893* reference with *Eiben* and/or *Webster* as suggested in the *Office Action*. As discussed previously, *Grace '893* does not teach or suggest a carbon dioxide foam manufacturing process

comprising filtering the pre-blend according to claim 31, from which rejected claims 37-40 depend. In fact, *Grace '893* explicitly teaches away from filtering by teaching that filter screens must be removed from the equipment. See *Grace '893*, col. 7, lines 29-32. As such, there is no suggestion or motivation to modify *Grace '893* to include filtering, and it is improper to combine *Grace '893* with references that teach filtering as presented in the *Office Action*. See MPEP § 2145 (“It is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)”). Accordingly, given that there is no suggestion or motivation to modify *Grace '893* to include filtering, the combination of *Grace '893* with *Eiben* and *Webster* does not make obvious claims 37-40, which depend from and incorporate the limitations of claim 31.

Claims 36-40 also stand rejected under 35 USC § 103(a) as being unpatentable over *Ricciardi* and further in view of *Eiben* and *Webster*. Claim 36 has been canceled, and claims 37-40 each depend from and incorporate the limitations of independent claim 31. Assuming for the sake of argument that the combination of *Ricciardi* with *Eiben* and/or *Webster* is proper (without conceding such), no *prima facie* case of obviousness has been established as such a combination does not teach or suggest all of the claim limitations. As discussed previously, *Ricciardi* does not teach or suggest a carbon dioxide foam manufacturing process comprising adding from about 5 to about 10 weight percent melamine according to independent claim 31, and neither *Eiben* nor *Webster* is cited for the purpose of showing such a manufacturing process comprising adding from about 5 to about 10 weight percent melamine. Accordingly, given that *Ricciardi* does not make obvious each and every element of claims 37-40, which depend from and incorporate the limitations of claim 31, and the other references do not make up for the lack of teaching of

*Ricciardi* regarding a manufacturing process comprising adding from about 5 to about 10 weight percent melamine, claims 37-40 are not obvious in view of the prior art of record.

***New Claims***

New claims 41-43 are hereby added to further claim the invention. Applicants submit that new claims 41-43 are in condition for allowance over the cited prior art at least because they depend from allowable independent claims and therefore contain the novel and non-obvious features discussed above.



**CONCLUSION**

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections is respectfully requested by Applicants. No new matter is introduced by way of the amendment. It is believed that each ground of rejection raised in the *Office Action* dated September 28, 2006 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

Respectfully submitted,

CONLEY ROSE, P.C.

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